Cutscores for District Performance Classifications for the State of the Schools

Report Based on the Percentage of Students Meeting the Mathematics Standards

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Cutscores for District Performance Classifications for the State of the Schools Report Based on the Percentage of Students Meeting the Mathematics Standards

The proposed 2002 State of the Schools Report will provide summary information for each district on how well students are performing on Nebraska's Mathematics Standards at Grades 4, 8, and 11. In addition to providing ratings of the quality of the assessments used to measure student performance in the district, districts will also be rated on the percentage of students in the district meeting these standards. Five performance categories have been established: Unacceptable, Acceptable but Needs Improvement, Good, Very Good, and Exemplary.

In order to make these classification decisions it is necessary establish the cutscores for classifying districts into the 5 performance categories based on the percentage of students meeting the Standards. This report summarizes the results of a workshop conducted to determine recommended cutscores for making these district performance classification decisions. This workshop was conducted on September 16, 2002 in Lincoln, NE.

Participants

A panel of 52 Nebraska educators attended the workshop. The panel was composed of ESU representatives and teachers, selected from all geographic

regions of the state. These panel members, on average, had over 21 years of experience in educational settings. The majority held advanced degrees (27 with masters degrees, 2 with doctoral degrees, 2 with an Education Specialist degree). Recruitment of these panel members was the responsibility of the State Department of Education. Of the 52 total panelists, 18 worked with the Grade 4 Mathematics Standards, 18 worked with the Grade 8 Standards, and 16 worked with the High School Standards. A list of the school districts and ESUs represented on the panel is included in the appendix.

Procedures

The first activity was to orient the full group of 52 panel members to the project and give them an overview of the tasks they would be completing. Then the panel members engaged in a discussion of the meaning of the five performance categories that were provided by the NDE. These performance category descriptors are included in the appendix. Panelists participated in a practice activity that asked them to consider an analogous situation. This training and practice activity was important to ensure the panelists' understanding of the tasks they would perform. After the orientation and practice activities, the panels were separated into grade-specific groups for the remainder of the workshop.

The panel members considered the standards in blocks, first addressing the Numeration/Number Sense Standards, followed in turn by the

Computation/Estimation, Measurement, Geometry, Data Analysis/Statistics/Probability, and Algebraic Concepts Standards. The high school panel members rated all of the Data Analysis/Statistics/Probability Standards even though they were not included in the calculation of the high school cutscores in this report. Within each strand of standards, panelists first familiarized themselves with the relevant standards and discussed the nature of the standards in terms of their levels of difficulty. Then, independently, they provided their initial decisions of the cutoff values for performance categories for each of the standards within that strand. They followed this same sequence of activities for the rest of the strands, turning in rating forms that showed their initial decisions of the percentage cutscores for the district performance categories for every standard within that section of Standards.

From their initial estimates, averages for the group for each performance category cutoff score, for each of the standards within each strand of standards, was determined. These preliminary results were shared with the panelists. Individual panelists were also privately shown their values. Next, panelists engaged in a discussion of these preliminary results. This discussion focused on the interpretation of the data and a reminder of how the cut scores would be used to classify districts' performance on meeting the standards. A second round of decisions was then obtained from the panelists. These second round values were averaged across the panelists to provide the recommended cutscores

for each of the performance levels for each of the standards within each strand of standards.

To determine the overall percentage cutoff values for the combined performance of students on the Mathematics Standards the cutoff values for each performance level across the full set of Standards were averaged (except for Grade 12, where the ratings for the Data Analysis/Statistics/Probability strand were not included). This yielded, for each grade level, four cutoff values: 1) minimum percentage needed to be classified as Acceptable but Needs Improvement; 2) minimum percentage needed to be classified as Good, 3) minimum percentage needed to be classified as Very Good; 4) minimum percentage needed to be classified as Exemplary.

After the panelists made their Round 2 decisions, they completed an evaluation that asked them to rate a) their level of satisfaction with the orientation and training and the whether the right amount of time was devoted to these activities, b) their confidence in the values they provided for the percentage cutscores for district performance classifications and whether they felt they had sufficient time to make these decisions, and c) their overall satisfaction with the workshop and the workshop's organization. In addition, they had the opportunity to provide written comments on ways they felt the workshop could be improved.

Results

The results for the district performance cutscores are presented for each grade level separately. Following these results is a summary of the evaluation ratings for the total group of 52 panelists.

Grade 4 Results

Table 1 contains the Round 1 averages, for each of the Mathematics Standards for each of the four cutscores. When these results were aggregated, the following cutscores resulted:

Round 1 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	36.2	3.60
Acceptable, Needs Improvement/Good	52.7	4.00
Good/Very Good	69.2	3.70
Very Good/Exemplary	84.5	3.20

Table 2 shows the Round 2 averages for the Mathematics Standards for each of the four cutscores. When these results were aggregated, the following cutscores were obtained:

Round 2 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	35.9	3.40
Acceptable, Needs Improvement/Good	52.0	3.90
Good/Very Good	68.8	3.70
Very Good/Exemplary	84.3	2.90

Grade 8 Results

Table 3 contains the Grade 8 Round 1 averages, for each of the Mathematics Standards for each of the four cutscores. When these results were aggregated, the following cutscores resulted:

Round 1 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	28.0	4.60
Acceptable, Needs Improvement/ Good	47.9	4.20
Good/Very Good	66.1	4.00
Very Good/Exemplary	81.7	3.40

Table 4 shows the Grade 8 Round 2 averages for the Mathematics Standards for each of the four cutscores. When these results were aggregated, the following cutscores were obtained:

Round 2 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	28.2	4.30
Acceptable, Needs Improvement/Good	48.0	3.90
Good/Very Good	66.6	3.80
Very Good/Exemplary	82.4	3.20

High School

Table 5 contains the High School Round 1 averages, for each of the Mathematics Standards for each of the four cutscores. When these results were aggregated (excluding the ratings for Data Analysis/Statistics/Probability in the calculations), the following cutscores resulted:

Round 1 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	35.0	4.70
Acceptable, Needs Improvement/ Good	51.6	4.10
Good/Very Good	67.0	4.10
Very Good/Exemplary	81.3	4.00

Table 6 shows the High School Round 2 averages for the Mathematics Standards for each of the four cutscores. When these results were aggregated (excluding the ratings for Data Analysis/Statistics/Probability in the calculations), the following cutscores were obtained:

Round 2 Cutscores	Mean	SD
Unacceptable/Acceptable, Needs Improvement:	35.3	4.10
Acceptable, Needs Improvement/Good	51.7	3.20
Good/Very Good	66.9	3.10
Very Good/Exemplary	80.7	3.10

Summary of Round 2 Results

Table 7 shows the values that would be used if the Round 2 estimates were adopted as the criteria for making district performance classification, rounding the values to the nearest whole percentage.

Table 7 Round 2 Recommended Percentage Cutscores for District Performance Classifications

	Grade Level		
	4	8	HS
Unacceptable/Acceptable, NI	36	28	35
Acceptable, Needs Improvement/Good	52	48	52
Good/ Very Good	69	67	67
Very Good/ Exemplary	84	82	81

Evaluation Results

All of the panelists were asked to provide an evaluation of workshop components. When asked about the Orientation and Training, the panelists indicated a high level of success, with an overall rating of 5.19 on a 6-point scale (where 1 = Very Unsuccessful and 6 = Very Successful). Individual elements of the Orientation and Training were also viewed as highly successful by the panelists: Orientation mean = 5.24; Overview of Tasks = 5.17; Discussion of Standards = 4.94; Practice = 4.73. Panelists also indicated that about the right amount of time was devoted to the Orientation and Training activities (mean

rating was 2.10 on a scale where 1 = too little time, 2 = right amount of time, and 3 = too much time). Using a 4-point scale to indicate their level of confidence in their decisions about the percentage of students needing to pass the standards for the district performance categories, overall panel confidence was 3.19 (where 4 = Confident). Panelists felt they had ample time to make these decisions as their average response to the question about the allocation of time for this task was 3.27 (where 4 = more than enough time to complete). The overall success of the workshop was rated, on average, at 3.13 (where 4 = Very Successful and 3 = Successful). Organization was rated overall at 3.56 (where 4 = Totally Successful and 3 = Successful). Seventy-three percent of the panelists elected to provide comments on their evaluations. Many of these comments related to suggestions for improving the process and providing comments about the political environment for the reform movement in Nebraska.

Recommendations

It is recommended that the NDE use the Round 2 averages as a starting place for their deliberations on the final values for making performance level classifications for districts in the State. Among the many factors that could be considered in making the final decisions about these cutscores is whether it is desirable to have different criteria for these categories for each of the grade levels or whether a common set of cutscores for all grade levels for these categories is more desirable. If a common set of cutscores is viewed as desirable, some

compromise in values across the grade levels would need to be determined. If it is decided to average these cutscores across the grade levels, the following common cutscores would result:

Common Cutscores for District Performance Classifications for Grades 4, 8, and High School for the Mathematics Standards

Unacceptable/Acceptable, Needs Improvement	33
Acceptable, Needs Improvement/Good	51
Good/Very Good	68
Very Good/Exemplary	82

For ease of communication, it might be desirable to adopt the following cutpoints:

Unacceptable/Acceptable, Needs Improvement	30
Acceptable, Needs Improvement/Good	50
Good/Very Good	68
Very Good/Exemplary	80

Given the amount of variability evidenced in the final results, these values are consistent with each of the panelists' final ratings.

Appendix

List of schools and ESUs represented by panel members

Performance category descriptors

Schools and ESUs Represented on Panel

Schools

Aurora Middle School
Banner County High School
Battle Creek High School
Cedar Canyon School
Central High School
Chadron High School
Clear Creek Public School
Conestoga Magnet School
Cottonwood ElementarySchool
Cross County High School - Stromsburg
Elgin High School
Emerson Hubbard Public School
Goodrich Middle School
Hampton Middle School
Horizon Middle School
Humann Elementary School
Kearney High School
Kiewit Middle School
King Science Middle School
Lakeside Central Elementary School
Lincoln Public Schools
Lincoln Southeast High School
Longfellow Elementary School
Lux Middle School
McCook High School
Millard North Middle School
Millard North High School
Millard South High School
Morton Middle School
Neihardt Elementary School
Nemaha Valley High School
Northwest High School
North Platte High School
O'Neill High School
Omaha Public Schools
Osceola Elementary Schools
Palmer Junior- Senior High Schol
Pawnee City Public Schools
Raymond Central Elementary School
Scottsbluff High School

Other

ESU #6 Milford
ESU #16 Ogallaha
Sandhills Curriculum Corsortium

Sioux County High School
Southeast Consolidated Schools
Valentine City Schools
Walthill Public School
Westside High School

Performance Category Descriptors

Exemplary: Exemplary student performance on standards means that a district has high levels of student performance on most or all of the standards. The performance on standards is consistently very strong.

Very Good: Very good student performance on standards means that a district has high performance of student performance on most of the standards. Student performance on standards is strong.

Good: Good student performance on standards means that students in the district perform well on some of the standards but not as well on others. Student performance on standards has more strengths than weaknesses.

Acceptable but needs improvement :
Acceptable but needs improvement performance on standards means that the district has moderate levels of student performance on most of the standards. Student performance on standards is balanced between strengths and weaknesses.

Unacceptable: Unacceptable performance on standards means that students in the district perform at unacceptable levels on most of the standards. Student performance on standards is consistently weak.

District Performance Rating Grade 4

Table 1: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.1 NUMERATION/NUMBER SENSE				
4.1.1 By the end of fourth grade, students will demonstrate place value of whole numbers through the millions and decimals to the hundredth place.	41	57	75	89
4.1.2 By the end of fourth grade, students will write and illustrate equivalences of whole numbers in expanded form, decimals, and fractions.	33	50	67	83
4.1.3 By the end of fourth grade, students will describe and apply relationships between whole numbers, decimals, and fractions by order, comparison, and operation.	33	46	65	81
4.1.4 By the end of fourth grade, students will identify examples of positive and negative numbers and zero.	32	48	67	82
4.1.5 By the end of fourth grade, students will make change and count out in amounts up to $20.00.	36	52	70	86
4.2 COMPUTATION/ESTIMATION				
4.2.1 By the end of fourth grade, students will estimate, add, subtract, multiply, and divide whole numbers without and with calculators and solve word problems.	41	57	73	88
4.2.2 By the end of fourth grade, students will estimate, add, and subtract decimals without and with calculators and solve word problems.	36	50	67	83
4.2.3 By the end of fourth grade, students will estimate, add, and subtract fractions with like denominators without calculators and solve word problems.	35	50	66	83

District Performance Rating Grade 4

Table 1: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.3 MEASUREMENT				
4.3.1 By the end of fourth grade, students will estimate, measure, and solve word problems using metric units for linear measure, area, mass/weight, capacity, and temperature.	31	48	65	81
4.3.2 By the end of fourth grade, students will estimate, measure, and solve word problems using standard units for linear measure, area, mass/weight, capacity, and temperature.	35	51	68	84
4.3.3 By the end of fourth grade, students will tell and write correct time to the minute using an analog clock.	44	61	77	90
4.3.4 By the end of fourth grade, students will measure and determine the perimeter of a many-sided figure without a formula using standard and metric units of measure.	34	51	66	81
4.4 GEOMETRY/SPATIAL CONCEPTS				
4.4.1 By the end of fourth grade, students will identify, describe, and create two- and three-dimensional geometric shapes.	37	54	70	84
4.4.2 By the end of fourth grade, students will identify and draw points, lines, line segments, rays, and angles.	41	59	74	89
4.4.3 By the end of fourth grade, students will identify, analyze, and compare two-dimensional geometric figures using congruence, symmetry, similarity, and simple	35	52	65	81
4.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
4.5.1 By the end of fourth grade, students will collect, organize, record, and interpret data and describe the findings.	37	55	73	87

District Performance Rating Grade 4

Table 1: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.6 ALGEBRAIC CONCEPTS				
4.6.1 By the end of fourth grade, students will use and interpret variables and mathematical symbols to write and solve one-step equations.	33	51	67	82
4.6.2 By the end of fourth grade, students will identify, describe, and extend arithmetic patterns, using concrete materials and tables.	39	56	71	86

District Performance Rating Grade 4

Table 2: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.1 NUMERATION/NUMBER SENSE				
4.1.1 By the end of fourth grade, students will demonstrate place value of whole numbers through the millions and decimals to the hundredth place.	38	55	74	88
4.1.2 By the end of fourth grade, students will write and illustrate equivalences of whole numbers in expanded form, decimals, and fractions.	32	49	66	82
4.1.3 By the end of fourth grade, students will describe and apply relationships between whole numbers, decimals, and fractions by order, comparison, and operation.	32	46	63	81
4.1.4 By the end of fourth grade, students will identify examples of positive and negative numbers and zero.	31	47	66	82
4.1.5 By the end of fourth grade, students will make change and count out in amounts up to $20.00.	36	52	70	86
4.2 COMPUTATION/ESTIMATION				
4.2.1 By the end of fourth grade, students will estimate, add, subtract, multiply, and divide whole numbers without and with calculators and solve word problems.	39	55	71	87
4.2.2 By the end of fourth grade, students will estimate, add, and subtract decimals without and with calculators and solve word problems.	34	49	65	81
4.2.3 By the end of fourth grade, students will estimate, add, and subtract fractions with like denominators without calculators and solve word problems.	35	49	65	83

District Performance Rating Grade 4

Table 2: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.3 MEASUREMENT				
4.3.1 By the end of fourth grade, students will estimate, measure, and solve word problems using metric units for linear measure, area, mass/weight, capacity, and temperature.	32	48	66	83
4.3.2 By the end of fourth grade, students will estimate, measure, and solve word problems using standard units for linear measure, area, mass/weight, capacity, and temperature.	36	51	68	84
4.3.3 By the end of fourth grade, students will tell and write correct time to the minute using an analog clock.	44	61	77	90
4.3.4 By the end of fourth grade, students will measure and determine the perimeter of a many-sided figure without a formula using standard and metric units of measure.	34	51	67	82
4.4 GEOMETRY/SPATIAL CONCEPTS				
4.4.1 By the end of fourth grade, students will identify, describe, and create two- and three-dimensional geometric shapes.	37	54	70	84
4.4.2 By the end of fourth grade, students will identify and draw points, lines, line segments, rays, and angles.	40	58	73	88
4.4.3 By the end of fourth grade, students will identify, analyze, and compare two-dimensional geometric figures using congruence, symmetry, similarity, and simple	35	51	66	82
4.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
4.5.1 By the end of fourth grade, students will collect, organize, record, and interpret data and describe the findings.	37	55	72	87

District Performance Rating Grade 4

Table 2: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
4.6 ALGEBRAIC CONCEPTS				
4.6.1 By the end of fourth grade, students will use and interpret variables and mathematical symbols to write and solve one-step equations.	33	50	67	82
4.6.2 By the end of fourth grade, students will identify, describe, and extend arithmetic patterns, using concrete materials and tables.	39	54	71	86

District Performance Rating Grade 8

Table 3: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.1 NUMERATION/NUMBER SENSE				
8.1.1 By the end of eighth grade, students will recognize natural numbers, whole numbers, integers, and rational numbers.	38	58	76	86
8.1.2 By the end of eighth grade, students will determine equivalences among fractions, decimals, and percents.	29	51	69	85
8.1.3 By the end of eighth grade, students will write and use numbers in expanded exponential form and scientific notation.	23	45	64	81
8.1.4 By the end of eighth grade, students will identify and display numbers including prime and composite, factors and multiples, divisibility, powers, and properties.	28	49	67	84
8.2 COMPUTATION/ESTIMATION				
8.2.1 By the end of eighth grade, students will add, subtract, multiply, and divide decimals and proper, improper, and mixed fractions with uncommon and common denominators with and without the use of technology.	24	46	64	81
8.2.2 By the end of eighth grade, students will identify the appropriate operation and do the correct calculations when solving word problems.	21	42	62	78
8.2.3 By the end of eighth grade, students will solve problems involving whole numbers, integers, and rational numbers (fractions, decimals, ratios, proportions, and percents) with and without the use of technology.	22	43	61	78

District Performance Rating Grade 8

Table 3: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.2.4 By the end of eighth grade, students will apply the order of operations to solve problems with and without the use of technology.	25	46	66	83
8.2.5 By the end of eighth grade, students will apply strategies of estimation when solving problems with and without the use of technology.	26	49	67	83
8.3 MEASUREMENT				
8.3.1 By the end of eighth grade, students will select measurement tools and measure quantities for temperature, time, money, distance, angles, area, perimeter, volume, capacity, and weight/mass in standard and metric units at the designated level of precision.	24	43	62	79
8.3.2 By the end of eighth grade, students will convert units within measurement systems using standard and metric, given conversion factors.	27	46	64	80
8.4 GEOMETRY/SPATIAL CONCEPTS				
8.4.1 By the end of eighth grade, students will identify, describe, compare, and classify two- and three-dimensional geometric figures-plane figures like polygons and circles; solid figures like prisms, pyramids, cones, spheres, and cylinders; lines, line segments, rays, angles, parallel and perpendicular lines.	35	55	73	89
8.4.2 By the end of eighth grade, students will use geometric properties, the Pythagorean theorem, and the relationships of congruence, similarity, and symmetry.	27	46	65	81
8.4.3 By the end of eighth grade, students will use formulas to solve problems involving perimeter and area of square, rectangle, parallelogram, trapezoid, and triangle and area and circumference of circles.	28	48	66	81

District Performance Rating Grade 8

Table 3: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.4.4 By the end of eighth grade, students will solve problems given formulas for volume and surface area of rectangular prisms, cylinders, and cones.	26	45	63	78
8.4.5 By the end of eighth grade, students will apply transformations to two-and three-dimensional geometric figures.	28	45	62	78
8.4.6 By the end of eighth grade, students will use geometric terms and representations to describe the physical world.	36	55	72	88
8.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
8.5.1 By the end of eighth grade, students will collect, construct, and interpret data displays and compute mean, median, and mode.	26	46	64	80
8.5.2 By the end of eighth grade, students will read and interpret tables, charts, and graphs to make comparisons and predictions.	30	50	67	83
8.5.3 By the end of eighth grade, students will conduct experiments or simulations to demonstrate theoretical probability and relative frequency.	28	48	66	81
8.5.4 By the end of eighth grade, students will identify statistical methods and probability for making decisions.	24	44	63	78

District Performance Rating Grade 8

Table 3: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.6 ALGEBRAIC CONCEPTS				
8.6.1 By the end of eighth grade, students will demonstrate knowledge and use of the one- and two-dimensional coordinate systems.	37	56	74	88
8.6.2 By the end of eighth grade, students will apply algebraic concepts and operations to solve linear equations and word problems.	28	46	64	80
8.6.3 By the end of eighth grade, students will describe and represent relations, using tables, graphs, and rules.	31	49	68	83

District Performance Rating Grade 8

Table 4: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.1 NUMERATION/NUMBER SENSE				
8.1.1 By the end of eighth grade, students will recognize natural numbers, whole numbers, integers, and rational numbers.	36	55	75	89
8.1.2 By the end of eighth grade, students will determine equivalences among fractions, decimals, and percents.	30	50	69	84
8.1.3 By the end of eighth grade, students will write and use numbers in expanded exponential form and scientific notation.	24	46	64	81
8.1.4 By the end of eighth grade, students will identify and display numbers including prime and composite, factors and multiples, divisibility, powers, and properties.	27	48	67	84
8.2 COMPUTATION/ESTIMATION				
8.2.1 By the end of eighth grade, students will add, subtract, multiply, and divide decimals and proper, improper, and mixed fractions with uncommon and common denominators with and without the use of technology.	25	46	65	82
8.2.2 By the end of eighth grade, students will identify the appropriate operation and do the correct calculations when solving word problems.	22	43	63	79
8.2.3 By the end of eighth grade, students will solve problems involving whole numbers, integers, and rational numbers (fractions, decimals, ratios, proportions, and percents) with and without the use of technology.	24	44	63	80

District Performance Rating Grade 8

Table 4: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.2.4 By the end of eighth grade, students will apply the order of operations to solve problems with and without the use of technology.	27	47	67	83
8.2.5 By the end of eighth grade, students will apply strategies of estimation when solving problems with and without the use of technology.	27	48	68	83
8.3 MEASUREMENT				
8.3.1 By the end of eighth grade, students will select measurement tools and measure quantities for temperature, time, money, distance, angles, area, perimeter, volume, capacity, and weight/mass in standard and metric units at the designated level of precision.	25	44	63	80
8.3.2 By the end of eighth grade, students will convert units within measurement systems using standard and metric, given conversion factors.	27	46	65	82
8.4 GEOMETRY/SPATIAL CONCEPTS				
8.4.1 By the end of eighth grade, students will identify, describe, compare, and classify two- and three-dimensional geometric figures-plane figures like polygons and circles; solid figures like prisms, pyramids, cones, spheres, and cylinders; lines, line segments, rays, angles, parallel and perpendicular lines.	36	55	72	89
8.4.2 By the end of eighth grade, students will use geometric properties, the Pythagorean theorem, and the relationships of congruence, similarity, and symmetry.	27	46	66	82
8.4.3 By the end of eighth grade, students will use formulas to solve problems involving perimeter and area of square, rectangle, parallelogram, trapezoid, and triangle and area and circumference of circles.	28	48	67	81

District Performance Rating Grade 8

Table 4: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.4.4 By the end of eighth grade, students will solve problems given formulas for volume and surface area of rectangular prisms, cylinders, and cones.	25	46	63	79
8.4.5 By the end of eighth grade, students will apply transformations to two-and three-dimensional geometric figures.	28	45	61	78
8.4.6 By the end of eighth grade, students will use geometric terms and representations to describe the physical world.	37	54	73	88
8.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
8.5.1 By the end of eighth grade, students will collect, construct, and interpret data displays and compute mean, median, and mode.	25	45	63	80
8.5.2 By the end of eighth grade, students will read and interpret tables, charts, and graphs to make comparisons and predictions.	30	50	67	84
8.5.3 By the end of eighth grade, students will conduct experiments or simulations to demonstrate theoretical probability and relative frequency.	28	49	66	82
8.5.4 By the end of eighth grade, students will identify statistical methods and probability for making decisions.	24	43	63	78

District Performance Rating Grade 8

Table 4: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
8.6 ALGEBRAIC CONCEPTS				
8.6.1 By the end of eighth grade, students will demonstrate knowledge and use of the one- and two-dimensional coordinate systems.	37	56	75	88
8.6.2 By the end of eighth grade, students will apply algebraic concepts and operations to solve linear equations and word problems.	27	46	64	81
8.6.3 By the end of eighth grade, students will describe and represent relations, using tables, graphs, and rules.	31	50	70	83

District Performance Rating Grade 12

Table 5: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.1 NUMERATION/NUMBER SENSE				
12.1.1 By the end of twelfth grade, students will describe and compare the relationships between subsets of real numbers.	41	57	73	88
12.1.2 By the end of twelfth grade, students will express the equivalent forms of numbers using exponents, radicals, scientific notation, absolute values, fractions, decimals, and percents.	40	56	73	87
12.2 COMPUTATION/ESTIMATION				
12.2.1 By the end of twelfth grade, students will solve theoretical and applied problems using numbers in equivalent forms, radicals, exponents, scientific notation, absolute values, fractions, decimals, and percents, ratios and proportions, order of operations, and properties of real numbers.	35	53	70	85
12.2.2 By the end of twelfth grade, students will justify solutions to mathematical problems.	31	48	65	82
12.2.3 By the end of twelfth grade, students will perform estimations and computations of real numbers mentally, with paper and pencil, and with technology.	42	58	74	88
12.3 MEASUREMENT				
12.3.1 By the end of twelfth grade, students will select and use measuring units, tools, and/or technology and explain the degree of accuracy and precision of measurements.	34	49	68	81
12.3.2 By the end of twelfth grade, students will convert between metric and standard units of measurement, given conversion factors.	36	51	68	80

District Performance Rating Grade 12

Table 5: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.4 GEOMETRY/SPATIAL CONCEPTS				
12.4.1 By the end of twelfth grade, students will calculate perimeter and area of two-dimensional shapes and surface area and volume of three-dimensional shapes.	33	52	66	82
12.4.2 By the end of twelfth grade, students will create geometric models to describe the physical world.	34	53	68	82
12.4.3 By the end of twelfth grade, students will evaluate characteristics and properties of two- and three-dimensional geometric shapes.	33	51	65	80
12.4.4 By the end of twelfth grade, students will apply coordinate geometry to locate and describe objects algebraically.	32	50	65	80
12.4.5 By the end of twelfth grade, students will apply right triangle trigonometry to find length and angle measures.	29	45	60	76
12.4.6 By the end of twelfth grade, students will apply geometric properties to solve problems.	32	49	64	79
12.4.7 By the end of twelfth grade, students will apply deductive reasoning to arrival at a conclusion.	28	46	61	76
12.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
12.5.1 By the end of twelfth grade, students will select a sampling technique to gather data, analyze the resulting data and make inferences.	27	40	56	70
12.5.2 By the end of twelfth grade, students will write equations and make predictions from sets of data.	27	42	56	69

District Performance Rating Grade 12

Table 5: Round 1 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.5.3 By the end of twelfth grade, students will apply theoretical probability to represent problems and make decisions.	29	43	57	70
12.5.4 By the end of twelfth grade, students will evaluate how transformations on data affect the measure of central tendency and variability.	23	36	50	63
12.5.5 By the end of twelfth grade, students will interpret data represented by the normal distribution and formulate conclusions.	20	32	44	55
12.5.6 By the end of twelfth grade, students will calculate probabilities of independent events.	31	45	59	72
12.6 ALGEBRAIC CONCEPTS				
12.6.1 By the end of twelfth grade, students will graph and interpret algebraic relations and inequalities.	43	56	70	84
12.6.2 By the end of twelfth grade, students will solve problems involving equations and inequalities.	43	57	70	83
12.6.3 By the end of twelfth grade, students will solve problems involving systems of two equations, and systems of two or more inequalities.	34	49	63	76
12.6.4 By the end of twelfth grade, students will solve problems using patterns and functions.	33	48	62	76

District Performance Rating Grade 12

Table 6: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.1 NUMERATION/NUMBER SENSE				
12.1.1 By the end of twelfth grade, students will describe and compare the relationships between subsets of real numbers.	36	52	68	84
12.1.2 By the end of twelfth grade, students will express the equivalent forms of numbers using exponents, radicals, scientific notation, absolute values, fractions, decimals, and percents.	37	54	69	85
12.2 COMPUTATION/ESTIMATION				
12.2.1 By the end of twelfth grade, students will solve theoretical and applied problems using numbers in equivalent forms, radicals, exponents, scientific notation, absolute values, fractions, decimals, and percents, ratios and proportions, order of operations, and properties of real numbers.	36	53	69	83
12.2.2 By the end of twelfth grade, students will justify solutions to mathematical problems.	33	50	66	81
12.2.3 By the end of twelfth grade, students will perform estimations and computations of real numbers mentally, with paper and pencil, and with technology.	44	58	73	86
12.3 MEASUREMENT				
12.3.1 By the end of twelfth grade, students will select and use measuring units, tools, and/or technology and explain the degree of accuracy and precision of measurements.	34	50	68	80
12.3.2 By the end of twelfth grade, students will convert between metric and standard units of measurement, given conversion factors.	35	52	68	80

District Performance Rating Grade 12

Table 6: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.4 GEOMETRY/SPATIAL CONCEPTS				
12.4.1 By the end of twelfth grade, students will calculate perimeter and area of two-dimensional shapes and surface area and volume of three-dimensional shapes.	33	51	66	82
12.4.2 By the end of twelfth grade, students will create geometric models to describe the physical world.	34	53	68	82
12.4.3 By the end of twelfth grade, students will evaluate characteristics and properties of two- and three-dimensional geometric shapes.	34	51	66	76
12.4.4 By the end of twelfth grade, students will apply coordinate geometry to locate and describe objects algebraically.	32	50	66	80
12.4.5 By the end of twelfth grade, students will apply right triangle trigonometry to find length and angle measures.	30	47	62	76
12.4.6 By the end of twelfth grade, students will apply geometric properties to solve problems.	33	50	65	80
12.4.7 By the end of twelfth grade, students will apply deductive reasoning to arrival at a conclusion.	29	47	62	77
12.5 DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS				
12.5.1 By the end of twelfth grade, students will select a sampling technique to gather data, analyze the resulting data and make inferences.	26	43	56	72
12.5.2 By the end of twelfth grade, students will write equations and make predictions from sets of data.	27	43	57	71

District Performance Rating Grade 12

Table 6: Round 2 Average Ratings

State Adopted Content Standards - Mathematics	Average			
	U/NI	NI/G	G/VG	VG/E
12.5.3 By the end of twelfth grade, students will apply theoretical probability to represent problems and make decisions.	28	44	58	72
12.5.4 By the end of twelfth grade, students will evaluate how transformations on data affect the measure of central tendency and variability.	24	37	51	65
12.5.5 By the end of twelfth grade, students will interpret data represented by the normal distribution and formulate conclusions.	21	35	48	61
12.5.6 By the end of twelfth grade, students will calculate probabilities of independent events.	30	45	57	73
12.6 ALGEBRAIC CONCEPTS				
12.6.1 By the end of twelfth grade, students will graph and interpret algebraic relations and inequalities.	43	56	70	83
12.6.2 By the end of twelfth grade, students will solve problems involving equations and inequalities.	43	58	71	83
12.6.3 By the end of twelfth grade, students will solve problems involving systems of two equations, and systems of two or more inequalities.	35	49	64	78
12.6.4 By the end of twelfth grade, students will solve problems using patterns and functions.	35	49	64	78